

AIR EMISSION PERMIT NO. 05500003- 003

IS ISSUED TO

Northern Engraving Corporation

Northern Engraving Corporation
202 4th Avenue Northeast
Spring Grove, Houston County, MN 55974

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date	Issuance Date	Action Number
Total Facility Operating Permit	06/15/1995	04/08/02	001
Moderate Amendment	06/27/2002	8/16/2002	002
Major Amendment	07/30/2003	see below	003

This permit authorizes the permittee to operate and modify the stationary source at the address listed above unless otherwise noted in Table A. The permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Major Amendment to State Permit; Limits to Avoid Parts 63 and 70, and NSR

Issue Date: November 20, 2003

Expiration: Permit does not expire
Title I Conditions do not expire.

Ann M. Foss
Majors Air and Construction Section
Manager
Majors And Remediation Division

for Sheryl A. Corrigan
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

Northern Engraving Corporation manufactures decorated metal and plastic nameplates and automotive parts. Plastic parts may be produced by melting and molding plastic pellets into parts. Plastic and metal sheets may also be used to make parts. Parts are decorated by the application of various inks, coatings, or paints. Coatings of sheets may be done by either priming before printing or adding a protective coating following lithographic or screened printing.

Lithography is a printing process in which the image configuration to be printed is rendered on a surface and treated so that it will retain ink. The non-image areas are treated to repel ink. Screening is a process where ink is pushed through open areas of a screen onto a metal or plastic sheet below the screen. Spraying is the application of paint by a spray gun either by hand or automatically. All decorated parts are dried and cured in ovens.

Once decorated, the flat parts may be punched out (blanked) and curve and angle formed. The parts are washed and are then ready for inspection, packing, and shipping.

The coatings, inks, and paints are sources of volatile organic compounds (VOCs) and Hazardous Air Pollutant (HAPs).

Permit Action 002

This permit action authorized the modification of EU 024 (PSO-SG-51). The screening line consisted of two screening machines, and an oven. The two screening machines were replaced. The facility name was also changed from Northern Automotive LLC to Northern Engraving Corporation.

Northern also added a screening line, EU 044 (PSO-SG-75) consisting of two screening machines and an oven.

Lastly, Northern replaced EU 025 (PSO-SG-52), EU 026 (PSO-SG-53), EU 030 (PSO-SG-64), and EU 031 (PSO-SG-65). These units are now identified as EU 045, EU 046, EU 047, and EU 048. Each of these units also consist of two screening machines and an oven.

Description of the Activities Allowed By This Permit Action (003)

This major amendment authorizes the installation of a spray booth (EU 049) and a conveyor/UV oven (EU 050). In addition, this permitting action revises the total facility VOC and HAP limits language so that future additions, replacements, or modifications of VOC and HAP emission sources (excluding indirect heating equipment) would automatically be subject to the limits and associated compliance requirements.

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item: Total Facility

What to do	Why to do it
LIMITS AND OPERATING REQUIREMENTS	hdr
<p>Volatile Organic Compounds: less than or equal to 95.0 tons/year using 12-month Rolling Sum (calculated by the 15th day of each month for the previous 12-month period). All VOC-emitting equipment at the Facility, including insignificant activities, is subject to this limit except indirect heating equipment.</p> <p>Excluding indirect heating equipment, if the Permittee replaces or modifies any existing VOC-emitting equipment, or adds new VOC-emitting equipment, such equipment is subject to this permit limit, as well as all of the applicable requirements listed in the Total Facility and GP 002 subject items of this permit. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. The Permittee is not required to repeat VOC calculations described in Minn. R. 7007.1200, subp. 2.</p> <p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping requirements in this permit.</p>	<p>Title I Condition: to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2</p>
<p>Reporting - Changes of VOC Emitting Equipment: For all VOC-emitting equipment changes made at the facility, the Permittee shall submit an annual report of such changes by January 31st of each year. The report shall describe changes made at the facility during the previous calendar year regardless if the change required a permit amendment. For all changes that didn't require a permit amendment, the changes shall be described by the Permittee using current applicable MPCA application forms for the new or replaced emission units, stack/vents, groups, and control equipment. The report shall be submitted with the annual Compliance Certification listed in Table B of this permit and include the twelve monthly-calculated 12-month rolling sum VOC emission values for the previous calendar year. As part of the annual report, the Permittee shall certify that the facility has maintained minor source status for part 70 and New Source Review.</p>	<p>Title I Condition: to avoid major source classification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2</p>
<p>HAPs - Total: less than or equal to 24.5 tons/year using 12-month Rolling Sum (calculated by the 15th day of each month for the previous 12-month period). All HAP-emitting equipment at the Facility, including insignificant activities, is subject to this limit except indirect heating equipment.</p> <p>Excluding indirect heating equipment, if the Permittee replaces any existing HAP-emitting equipment or adds new HAP-emitting equipment, such equipment is subject to this permit limit as well as all of the applicable requirements listed in the Total Facility and GP 002 subject items of this permit.</p> <p>Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. A permit amendment may be needed if the change will be subject to a new applicable requirement or requires revisions to limits or the monitoring and recordkeeping requirements in this permit.</p>	<p>Title I Condition: to avoid major source classification under 40 CFR Section 63.2; Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2</p>
<p>HAP-Single: less than or equal to 9.5 tons/year using 12-month Rolling Sum (calculated by the 15th day of each month for the previous 12-month period). All HAP-emitting equipment at the Facility, including insignificant activities, is subject to this limit except indirect heating equipment.</p> <p>Excluding indirect heating equipment, if the Permittee replaces any existing HAP-emitting equipment or adds new HAP-emitting equipment, such equipment is subject to this permit limit as well as all of the applicable requirements listed in the Total Facility and GP 002 subject items of this permit.</p> <p>Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. A permit amendment may be needed if the change will be subject to a new applicable requirement or requires revisions to limits or the monitoring and recordkeeping requirements in this permit.</p>	<p>Title I Condition: to avoid major source classification under 40 CFR Section 63.2; Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2</p>
<p>Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.</p>	<p>Minn. R. 7011.0020</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Permitted Fuel Types: Limited to natural gas or liquidified propane gas for all combustion equipment at the facility.	Minn. R. 7007.0800, subp. 2
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. The Plan does not need to be a stand-alone document if it is incorporated into the facility's written environmental management system. At a minimum, the O & M plan shall identify all air pollution control equipment and shall include a preventative maintenance program for that equipment, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subps. 14 and 16(J)
NOTIFICATIONS, SUBMITTALS, AND REPORTS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Emission Inventory Report: due 91 days after end of each calendar year following permit issuance (April 1). To be submitted in a format specified by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3030
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
MONITORING AND RECORDKEEPING	hdr
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
VOC and HAP Material Content Monitoring: Obtain from the supplier a MSDS or Environmental Data Sheet (EDS) for all VOC-containing and HAP-containing materials used at the facility. The supplier data shall specify the VOC content and HAP content of each HAP in each material. Material content may be expressed in pounds per gallon or as a percent by weight if the density of the material is also indicated. Maintain supplier data for a minimum of five years.	Title I Condition: to avoid major source classification under 40 CFR Sections 52.21 and 63.2
If the MSDS or EDS contains a range of a VOC or individual HAP content, the Permittee shall use the upper range for the monthly calculations, or other more specific information as provided by the manufacturer to the Permittee, or sampling.	Minn. R. 7007.0800, subp. 4
VOC/HAP Vapor Extraction Recordkeeping: by the 15th day of each month, record the quantity of VOC/HAP, from the vapor extraction (soil remediation) unit emitted during the previous month.	Title I Condition: to avoid major source classification under 40 CFR Sections 52.21 and 63.2
Monthly VOC Material Usage and VOC Usage Recordkeeping: by the 15th day of each month, record the quantity for each VOC-containing material and its VOC content used during the previous month. Separate records shall be kept for each material quantity and VOC content.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21
Monthly and 12-month rolling sum VOC Emissions Recordkeeping: 1) by the 15th day of each month, calculate VOC emissions for the previous month as follows: $\sum_{i=1}^n [(U_i \times C_i \times D_i)/2000] + (R/2000) - (W/2000) = \text{VOC Emissions}$ where: n = number of all VOC containing materials used during month U _i = VOC monthly usage (gallons) for material i C _i = Percent VOC content, by weight, for material i D _i = VOC material density (lb/gal) for material i R = VOC content emitted from vapor extraction unit (pounds) W = VOC waste shipped off-site (pounds) 2) by the 15th day of each month, calculate VOC emissions for previous 12-month period by summing the monthly VOC emissions for the previous 12 months.	Minn. R. 7007.0800, subp. 5
Monthly HAP Material Usage and HAP Usage Recordkeeping: by the 15th day of each month, record the quantity of each HAP from each HAP containing material and its HAP contents used during the previous month. Separate records shall be kept for each material's quantity of each HAP and each of its HAP's content.	Title I Condition: to avoid major source classification under 40 CFR Section 63.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

<p>Monthly and 12-month rolling sum Single HAP Emissions Recordkeeping:</p> <p>1) by the 15th day of each month, calculate single HAP emissions, for all HAP containing materials, for the previous month as follows:</p> $\sum_{i=1}^n [(U_i \times C_i \times D_i)/2000] + (R/2000) - (W/2000) = \text{HAP Emissions}$ <p>where:</p> <p>n = number of all materials containing same HAP used during the month U_i = HAP monthly usage (gallons) for material i C_i = Percent HAP content, by weight, for material i D_i = HAP material density (lb/gal) for material i R = HAP content emitted from vapor extraction unit (pounds) W = HAP content shipped off-site (pounds)</p> <p>2) by the 15th day of each month, calculate single HAP emissions, for all HAP containing materials, for previous 12-month period by summing the monthly HAP emissions for the previous 12 months.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Monthly and 12-month Rolling Sum Total HAP Emissions Calculations:</p> <p>By the 15th day of each month:</p> <p>1) Calculate and record the total HAP emissions for the previous month by summing the individual HAP emissions from the previous month;</p> <p>2) Calculate and record the total HAP emissions for the previous 12-month period by summing the total monthly HAP emissions from the previous 12 months.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>Maintain the records of the Shipper or Disposer certifications which state the amount of VOC and/or individual HAPs contained in the waste and the date the waste was shipped from the facility.</p>	<p>Title I Condition: to avoid major source classification under 40 CFR Sections 52.21 and 63.2</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: GP 001 Boilers**Associated Items:** EU 001 Boiler PB-01-SG

EU 002 Boiler PB-02-SG

EU 003 Boiler PB-03-SG

What to do	Why to do it
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 1
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: GP 002 Paint Spray Booths

Associated Items: CE 001 Mat or Panel Filter
CE 002 Mat or Panel Filter
CE 003 Mat or Panel Filter
CE 004 Mat or Panel Filter
CE 005 Mat or Panel Filter
CE 006 Mat or Panel Filter
CE 007 Mat or Panel Filter
CE 008 Mat or Panel Filter
CE 009 Mat or Panel Filter
CE 010 Mat or Panel Filter
EU 005 Paint Booth PSB-10-SG
EU 006 Paint Booth PSB-11-SG
EU 008 Paint Booth PSB-13-SG
EU 009 Paint Booth PSB-14-SG
EU 010 Paint Booth PSB-15-SG
EU 015 Paint Booth PSB-25-SG
EU 016 Paint Booth PSB-26-SG
EU 017 Paint Booth PSB-27-SG
EU 018 Paint Booth PSB-34-SG
EU 021 Paint Booth PSB-35-SG
EU 049 Paint Booth PSB-SG-76

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
CONTROL EQUIPMENT REQUIREMENTS	hdr
The Permittee shall operate and maintain the control equipment such that it achieves an overall collection efficiency for Particulate Matter < 10 micron: greater than or equal to 92 percent collection efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall collection efficiency for Total Particulate Matter: greater than or equal to 92 percent collection efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the panel filters any time that any process equipment controlled by the panel filters is in operation.	Minn. R. 7007.0800, subp. 2 and 14
Daily Inspections: Once each operating day, the Permittee shall visually inspect the condition of each panel filter with respect to alignment, saturation, tears, holes and any other condition that may affect the filter's performance. The Permittee shall maintain a daily written record of filter inspections.	Minn. R. 7007.0800, subp. 4 and 5
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5, and 14
Corrective Actions: If the filters or any of their components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the filter(s). The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Operation and Maintenance of Filters: The Permittee shall operate and maintain each filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.

Minn. R. 7007.0800, subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: GP 003 Ovens**Associated Items:** EU 004 Box Oven PBO-09-SG

EU 011 Oven STO-16-SG

EU 012 Oven STO-17-SG

EU 019 Oven STO-38-SG

EU 024 Screening Line PSO-51-SG, with oven and 2 screen machine

EU 037 Oven SDO-45-SG

EU 038 Oven SDO-39-SG

EU 039 Coating Line, PCO-69-SG, with oven, 2 coaters, and 1 screen machine

EU 041 Coating Line, PCO-72-SG, with oven, 2 coaters, and 1 screen machine

EU 044 Screening line (PSO-SG-75), with oven and two screening machines

EU 045 Screening line (PSO-SG-52), with oven and two screening machines

EU 046 Screening line (PSO-SG-53), with oven and two screening machines

EU 047 Screening line (PSO-SG-64), with oven and two screening machines

EU 048 Screening line (PSO-SG-65), with oven and two screening machines

What to do	Why to do it
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: EU 033 UV Litho Line SLO-70-SG

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: EU 036 Cleaning Oven PCO-68-SG

What to do	Why to do it
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1
The cleaning oven unit is to be used as a rack, part, and drum reclamation unit, in accordance with 40 CFR 60 part 60.2555(k).	40 CFR 60 part 60.2555(k)

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: EU 043 Screening Cylinder Press (PSO-74-SG), with electric oven**Associated Items:** SV 045 SSO-74-SG

SV 046 SSO-74-SG

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

Subject Item: EU 050 Conveyor/Electric UV Oven**Associated Items:** SV 066 Conveyor/UV Oven Exhaust

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)

TABLE B: SUBMITTALS

11/20/03

Facility Name: Northern Engraving Corp
Permit Number: 05500003 - 003

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: RECURRENT SUBMITTALS

11/20/03

Facility Name: Northern Engraving Corp

Permit Number: 05500003 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 04/08/2002 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 04/08/2002 (for the previous calendar year). To be submitted to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility
Report	due 31 days after end of each calendar year following Permit Issuance. This is the report of all changes of VOC-emitting equipment made at the facility. This report shall be submitted with the annual compliance certification that is submitted to the Commissioner. See the requirement titled "Reporting - Changes of VOC Emitting Equipment" in the Total Facility subject item in Table A of this permit for additional information about the content of this report.	Total Facility

APPENDIX MATERIAL

Facility Name: Northern Engraving Corporation

Permit Number: 05500003-003

Insignificant Activities

Plastic grinding with vacuum with bag filter, no outside exhaust

Toll room: welding, EDM machine with ventilation

Maintenance: welding, plasma cutting, torching, brazing – hood exhaust

Screenmaking area: screen cleaning booth, exhausted, used for removing emulsions from screens with water, aqueous cleaners and haze remover with < 10% sodium hydroxide, 250,000 Btu box oven used for drying washed screen making equipment

Paint mixing lab, exhausted through vent and hood

Ink mixing lab, exhausted through vents and hoods

3 conveyors with infrared heat units: 2 used to dry off washed metal sheets, one used to dry machine lubricant off formed parts

One sheet prep applicator area which applies a water and < 1% VOC solution onto metal sheets for cleaning

TECHNICAL SUPPORT DOCUMENT
For
PROPOSED AIR EMISSION PERMIT NO. 05500003-003

This technical support document (TSD) is intended for all parties interested in the proposed permit and to meet the requirements that have been set forth by the federal regulations and Minn. R. (40 CFR, Section 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the proposed permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 3089 and 3469)
Northern Engraving Corporation 803 South Black River Street Sparta, WI 54656	202 4 th Avenue NE Spring Grove Houston County
Contact: Mary Goodman 608/269-6911	

1.2. Description of the Facility

Northern Automotive manufactures decorated metal and plastic nameplates and automotive parts. Plastic parts may be produced by melting and molding plastic pellets into parts. Plastic and metal sheets may also be used to make parts. Parts are decorated by the application of various inks, coatings, or paints. Coatings of sheets may be done by either priming before printing or adding a protective coating following lithographic or screened printing.

Lithography is a printing process in which the image configuration to be printed is rendered on a surface and treated so that it will retain ink. The non-image areas are treated to repel ink. Screening is a process where ink is pushed through open areas of a screen onto a metal or plastic sheet below the screen. Spraying is the application of paint by hand or automatically. All decorated parts are dried and cured in ovens.

Once decorated, the flat parts may be punched out (blanked) and curve- or angle-formed. The parts are washed and are then ready for inspection, packing, and shipping.

The coating, inks, and paints are sources of volatile organic compounds (VOCs) and Hazardous Air Pollutants (HAPs).

1.3 Description of the Activities Allowed by this Permit Action

This permit action authorizes the installation of a small spray booth and associated ultra violet (UV) oven/conveyor system. In addition, language has been added to the total facility VOC and HAP emission limits that in many cases will allow the Permittee to replace, modify, or add VOC/HAP emitting equipment, without obtaining a major permit amendment. With this language addition, such changes can usually be made according to the minor or moderate permit amendment requirements in Minn. R. 7007.1450.

Also, control equipment compliance requirements have been added to GP 002 for all spray booth panel filters. Finally, the title I VOC limit citation in the existing permit has been revised so that it now indicates that it is to avoid major source classification under 40 CFR § 52.21, instead of under 40 CFR § 70.2. In addition, a phrase was inserted into the citation to indicate that the limit is also based on Minn. R. 7007.0800, subp. 2 to avoid part 70 major source status.

1.4. Facility Emissions:

Emissions Associated With the Modification

Table 1. PTE from the Modification in tons per year

Pollutant	PM	PM₁₀	SO₂	NO_x	VOCs	CO
PTE	1.53	1.53	0	0	2.60	0

Table 2. Modification Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD			PM, PM ₁₀ , SO ₂ , NO _x , CO, VOC, Pb
Part 70 Permit Program			PM ₁₀ , SO ₂ , NO _x , CO, VOC, Single and Total HAPs

2. Regulatory and/or Statutory Basis

New Source Review

The facility is a non-major source under New Source Review due to the 95 tpy total facility VOC emission cap.

Part 70 Permit Program

The facility is a non-major source under the Part 70 permit program, due to VOC and HAP limits.

New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is subject to limits on HAP usage and therefore it is a non-major source under 40 CFR pt. 63. Therefore, the applicable source category NESHAP, part 63 subp. PPPP (based on the NAICS of 326199/SIC code 3089) does not apply.

Minnesota State Rules

The spray booth (EU 049) and the conveyor/electric UV oven (EU 050) are subject to the particulate matter and opacity limits in Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment.

Community Involvement Process (CIP): This permit action is a major amendment so it is subject to the CIP. The initial information gathering phase revealed that no complaints have been received by the MPCA since May 31, 2000. It is the opinion of the permit writer that the additional spray booth and conveyor/oven will not be controversial, and therefore, no additional CIP is warranted.

Table 3. Regulatory Overview of Units Affected by the Modification

EU No.	Applicable Regulations	Comments:
EU 049 (in GP 002)	Minn. R. 7011.0715	Minnesota Standards of Performance for New Industrial Process Equipment; particulate matter and opacity limits
EU 050	Minn. R. 7011.0715	Minnesota Standards of Performance for New Industrial Process Equipment; particulate matter and opacity limits

3. Technical Information

A. Revisions and Corrections Made to The Existing Permit Not In The Scope Of The Modification:

1. The total facility HAP emission calculation equation was corrected by adding the denominator of '2000' to the following part of the equation $[(U_i \times C_i \times D_i)/2000]$ in order to convert the pounds to tons of HAP from the usage of HAP-containing materials.
2. The citations for all total facility Title I requirements pertaining to VOC emissions were changed from 'Title I Condition: to avoid major source status under 40 CFR § 70.2' to Title I Condition: to avoid major source status under 40 CFR § 52.21; Minn. R.

7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2'. Part 70 is in title V of the Clean Air Act and citation as a Title I condition is not appropriate. Based on the 'HAPs PTE' document for PER 001, potential VOC emissions (excluding 49.5 lb/hr from cleanup) are about 220 lb/hr from spray booths, screening machines, and coating machines. This is approximately 965 tpy, so the revised citation language is appropriate. Both of the HAP limit citations were also revised by adding 'Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2'.

3. Pre-Cap language was added to the permit total facility VOC and HAP limits. This was done so that future additions, replacements, or modifications to VOC and HAP emission sources (excluding indirect heating equipment) would be automatically subject to these limits and associated compliance requirements. This would allow the Permittee to avoid major amendment permitting requirements for such equipment changes.
4. Paint booth control equipment periodic monitoring requirements were added to GP 002. These were absent from the permit, so they were added as part of this permit action. The TSD for PER 001 indicates that the control equipment rule does not apply, so no control equipment compliance requirements are necessary. However, this is incorrect because potential uncontrolled Particulate Matter (PM) emissions for existing paint booths exceed the PM emissions allowed by the Minnesota Industrial Process Equipment Rule (IPER). Note that for the new paint booth, EU 049, control equipment is not needed to meet the IPER limit, so no control equipment compliance requirements apply.

Potential uncontrolled PM emissions from coating are:

9.0 gal/hr total facility coating application rate
30 % transfer efficiency
assume 4.5 lb solids per gallon worst case (according to PER 001)

$$9.0 \text{ gal/hr} * (1 - 0.3) * 4.5 \text{ lb/gal} * 8760 \text{ hr/yr} * \text{ton}/2000 \text{ lb} = \mathbf{124.2 \text{ tpy PM}}$$

PM emissions allowed by table 2 (7011.0735) are:

total air flow is 22,900 (data from PER 001 TSD) + 500 (EU 049) + 2200 (EU 020 that was overlooked by PER 001 TSD - no data in delta SV tab, so this is based on similar SV data) = 25,600 acfm

no individual airflow >7000 dscfm, so allowed concentration is 0.1 gr/dscf

assume average temp of 75F, no moisture

correct flow rate to 20°C:

$$528/(75 + 460) * 25,600 \text{ acfm} = 25,265 \text{ dscfm}$$

$$25,265 \text{ dscf/min} * 0.1 \text{ gr/dscf} * \text{lb}/7000 * 60 \text{ min/hr} = 21.66 \text{ lb PM/hr} = \mathbf{94.85 \text{ tpy allowed by IPER.}}$$

Therefore, control equipment must be used to meet the IPER PM limit, and control equipment periodic monitoring requirements are necessary.

5. The original title V permit issued in 2002 contained a 2007 expiration date. This is a state permit, and the inclusion of an expiration date was an oversight by the title V permit writer. The proposed draft permit has corrected this so that when issued, the permit will not expire.

3.1 Calculations of Potential to Emit For The Modification

EU 049

0.1 gal/hr

30% transfer efficiency

maximum 5 lb/gal solids

maximum 6 lb/gal VOC

$0.1 \text{ gal/hr} * (1-0.3) * 5 \text{ lb/gal} = 0.35 \text{ lb/hr PM/PM}_{10} \text{ per hr} = 1.533 \text{ tpy}$

$0.1 \text{ gal/hr} * 6 \text{ lb/gal} = 0.6 \text{ lb/hr VOC} = 2.6 \text{ tpy}$

PM allowed by IPER

500 acfm @ 70 F

Assume table 2 (7011.0735) is least stringent, and exhaust contains no moisture
correct flow rate to 20°C:

$528/(70 + 460) * 500 \text{ acfm} = 498 \text{ dscfm}$

$498 \text{ dscf/min} * 0.1 \text{ gr/dscf} * \text{lb}/7000 * 60 \text{ min/hr} = 0.43 \text{ lb PM/hr allowed by IPER}$

Therefore, EU 049 emissions will meet the IPER.

There are no emissions associated with EU 050 conveyor/UV oven. It is assumed that all VOC and PM/PM₁₀ is emitted from the spray operation. This is acceptable because EU 049 emissions are calculated based on mass balance.

3.2 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere:

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 4. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
Spray Booths: GP 002 except EU 049	Minnesota Industrial Process Equipment Rule; PM and opacity limits	Routine monitoring, inspection, and corrective actions for panel filters	Standard PM requirement for spray booth panel filters, to ensure compliance with Pm and opacity limits.

3.3 Comments Received During Public Notice:

No comments were received during the 30-day public notice. However, during the public notice period, the permit writer added an additional requirement for an annual report of all changes made to VOC-emitting equipment. The requirement was added to the Total Facility subject item in Table A, as well as to Table B. This reporting requirement was overlooked in the permit drafting process. It is necessary in order to accommodate the automatic applicability of all changes to VOC-emitting equipment changes made at the facility, to the Total Facility 95 tpy VOC limit and related requirements.

4. Conclusion

Based on the information provided by Northern Engraving Corporation, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 05500003-003 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Marshall Cole (permit writer/engineer)
Greg Berger (enforcement)
Jenny Reinertsen (peer reviewer)